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RESPONSE UNDER 37 CFR 1.116
EXPEDITED PROCEDURE
EXAMINING GROUP ART UNIT 2625

03560.002787

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:)
FUMIO MIKAMI : Examiner: P. Huntsinger
Appln. No.: 09/838,279)
Filed: April 20, 2001)
For: RECORDING APPARATUS AND)
METHOD OF CORRECTING :
NONUNIFORMITIES IN DENSITY)
OF RECORDING HEAD : August 11, 2006

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Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

REQUEST FOR RECONSIDERATION

Sir:

In response to the Office Action dated May 16, 2006, Applicant respectfully requests reconsideration and allowance in view of the following remarks.

Claims 1-34 remain pending in the application, with Claims 1, 14 and 21 being independent. The claims have not been amended herein.

Claims 1-7, 19-28 and 30-34 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,528,270 (Tajika et al.) in view of U.S. Patent Nos. 6,160,922 (Hayashi) and 6,697,167 (Takahashi). Dependent Claims 8 and 29 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Tajika et al. and Takahashi in view of U.S. Patent No. 6,439,683 (Matsumoto et al.). These rejections are respectfully traversed.

Independent Claim 1 relates to, *inter alia*, a recording apparatus for recording an image by using a recording head in which a plurality of recording elements are arranged and for correcting non-uniformities in the density of the recorded image caused by different recording elements having different recording characteristics. This apparatus is comprised of a memory means, a first forming means, a first setting means, a second forming means, and a second setting means. The memory means is used to store a first table group used for correcting input multi-level image data, the first table group comprising a plurality of first correction tables, each first correction table having a different degree of correction and a second table group comprising a plurality of second correction tables having correction characteristics which are different from correction characteristics of the first table group with respect to different density levels. The first forming means is used to instruct each of the recording elements to record a pixel of a predetermined density to form a first test pattern using all of the recording elements. The first setting means is used to set test correction tables for making the densities of an image to be recorded by the plurality of recording elements uniform by associating first correction tables of the first table group with respective recording elements of the plurality of recording elements based

on a result of reading the densities of areas of the first test pattern that correspond to the plurality of recording elements. The second forming means instructs each of the plurality of recording elements to record a plurality of pixels at the same plurality of different density levels, to form a second test pattern having a plurality of different density levels, the second test pattern being recorded with the recording elements being corrected by the test correction tables set by said first setting means. The second setting means sets recording correction tables corresponding to each of the plurality of recording elements based on the second test pattern, the recording correction tables being selected from among the first table group and the second table group.

As recited in Claim 14, the present invention relates to, *inter alia*, a method for recording an image on a recording medium using a recording head having a plurality of recording elements arranged therein for correcting non-uniformities in the density of an image recorded by the recording head caused by different recording elements having different recording characteristics by forming a first test pattern by instructing each of the recording elements to record a pixel of a predetermined density, setting test correction tables for making the densities of an image to be recorded by the plurality of recording elements uniform by associating first correction tables with respective recording elements of the plurality of recording elements based on a result of reading the densities of areas of the first test pattern, forming a second test pattern having a plurality of different density levels by instructing each of the plurality of recording elements to record a plurality of pixels at the same plurality of different density levels, the second test pattern being recorded with the recording elements corrected by the test correction tables set in the first

setting step, and setting correction tables corresponding to each of the plurality of recording elements based on the second test pattern.

Claim 21 relates to, *inter alia*, a recording apparatus for performing binary recording on a recording medium by controlling binarizing means for binarizing input multi-level data and driving recording heads, each recording head comprising a plurality of recording elements, according to a binary signal output by the binarizing means, and for correcting non-uniformities in the density of a recorded image caused by different recording elements having different recording characteristics. This apparatus is comprised of a plurality of density correcting table groups, means for determining whether different recording elements have different recording characteristics, means for selecting a density correcting table group from the plurality of density correcting table groups and correcting means for correcting the operation of any recording element determined by the determining means not to print a pixel at a predetermined density.

Tajika et al. is not understood to teach or disclose at least the “[first] table group[s] for correcting input multi-level image data” as recited in Claims 1, 14 and 21 of the present application. Tajika et al. clearly indicates that its first table group is used simply as a reference table to “indicat[e] the density characteristics of each of the recording elements of the ... recording head.” (col. 3, lines 47-54). It is not understood to contain any corrective data. Furthermore, Tajika et al. does not teach or disclose creating the second test correction pattern as is recited in at least Claims 1 and 14. Tajika et al. discloses a single correction table formed after a single test print (Fig. 13, column 9, line 55 to column

10, line 26). Thus Tajika, et al. does not teach or suggest features found in independent Claims 1, 14 and 21.

As understood by Applicant, Takahashi relates to two separately processed density correction procedures used to individually create density correction values for the recording elements of a recording head. Because these processes are performed without reference to each other (column 11, lines 40-66, column 13, line 36 to column 14, line 5 and column 21 lines 4-14), Takahashi fails to teach or disclose the claimed second forming means of the present application, specifically forming “a second test pattern having a plurality of different density levels ... the second test pattern being recorded with the recording elements being corrected by the test correction tables set by said first setting means [or step]” as is recited in Claims 1 and 14.

Applicant submits that Hayashi is not understood to teach or disclose the plural correction table groups identified in the instant application to create the first and second density test correction tables. The C, M, Y and K tonality correction tables in Hayashi are generated based only on the data read from the test print passed through a conversion function (Fig. 24 and column 14, line 48 *et seq.*), not by “associating first correction tables ... with respective recording elements ... based on a result of reading the densities of areas of the first test pattern” as is recited in Claims 1 and 14, or by “associating the address of that recording element with the correcting table from the selected correcting table group that will correct the density of pixels recorded by that recording element” as is recited in Claim 21.

Thus, independent Claims 1, 14 and 21 and their corresponding dependent claims are patentable over the citations of record. Reconsideration and withdrawal of the § 103 rejections are respectfully requested.

For the foregoing reasons, Applicant respectfully submits that the present invention is patentably defined by independent Claims 1, 14 and 21. Dependent Claims 2-13, 15-20 and 22-34 are also allowable, in their own right, for defining features of the present invention in addition to those recited in their respective independent claims. Individual consideration of the dependent claims is requested.

Applicant submits that the present application is in condition for allowance. Favorable reconsideration, withdrawal of the rejections set forth in the above-noted Office Action, and an early Notice of Allowability are requested.

Applicant's undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should continue to be directed to our below-listed address.

Respectfully submitted,



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